OPTIMAL ESTIMATION IN RANDOM COEFFICIENT REGRESSION MODELS

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Abstract. In linear regression models with random coefficients, the score function usually involves unknown nuisance parameters in the form of weights. Conditioning with respect to the sufficient statistics for the nuisance parameter, when the parameter of interest is held fixed, eliminates the nuisance parameters and is expected to give reasonably good estimating functions. The present paper adopts this approach to the problem of estimation of average slope in random coefficient regression models. Four sampling situations are discussed. Some asymptotic results are also obtained for a model where neither the regressors nor the random regression coefficients replicate. Simulation studies for normal as well as non-normal models show that the performance of the suggested estimating functions is quite satisfactory.

Key words and phrases: Conditional estimating function, random coefficient regression models, semi-parametric models, stratified data.